



# October 2018 Recommended Programme of Investment

Published May 2019

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Let's GET Wellington MOVING



NZ TRANSPORT  
AGENCY  
WAKA KOTAHU



greater WELLINGTON  
REGIONAL COUNCIL  
Te Mana Matua Taiao

Absolutely Positively  
Wellington City Council  
Me Heke Ki Pōneke

THE RECOMMENDED  
PROGRAMME IS AMBITIOUS  
AND ASPIRATIONAL,  
AND SEEKS TO REALISE  
LGWM'S VISION



Artist impression - possible solution

# Overview

## MAKING WELLINGTON A BETTER PLACE BY MOVING MORE PEOPLE WITH FEWER VEHICLES

LGWM used the community's feedback, and our extensive technical work, to develop this Recommended Programme of Investment.

This was endorsed by the LGWM Governance Group in late 2018.

The recommended programme reflects the partners' ambitions for improving Wellington's transport system over the next two decades.

It is a high-level, whole-of-system approach that will enable the growth of the city and the region.

It seeks to integrate urban development with transport investment, and help people get around, whether you're walking, cycling, using public transport, or driving.

At its heart, the programme seeks to deliver a multi-modal transport system that moves more people, goods and services reliably, with fewer vehicles.

## FUNDING AND AFFORDABILITY

Once the Recommended Programme of Investment was endorsed by the LGWM Governance Group, it was shared with central government due to its scale and the funding challenges it presents.

The LGWM vision and the recommended programme are ambitious. The Governance Group challenged the LGWM team to be bold so we didn't miss any opportunities to support the city and region's success. As such, LGWM acknowledges the programme as a whole is unlikely to be fundable within current transport funding settings.

However, LGWM's focus on integrating land use with transport investment has the potential to deliver large benefits via urban regeneration and uplift – especially from a new mass transit system.

With this in mind, members of the LGWM Governance Group engaged with transport ministers to develop an innovative funding model for LGWM and to seek support for an initial package of investments that would allow early and substantial progress to be made in realising the ambitions of the recommended programme.

# The recommended programme



Artist impression – possible solution

# Moving more people with fewer vehicles

## OUR STRATEGIC APPROACH

### 1 Make the most of what we have

- Optimise the transport system and make it safer
- Encourage people to walk, cycle, and use public transport more, and use cars less

Improve public transport priority and capacity on core routes into the city and to the region

### 2 Deliver a step change in public transport

- Substantially improve public transport capacity, quality and performance
- Encourage urban intensification near public transport

Relocate through traffic out of the central city and other routes (such as Evans Bay Parade and Constable St) to the state highway – to improve amenity and places for people

### 3 Improve journeys to, from and in the central city

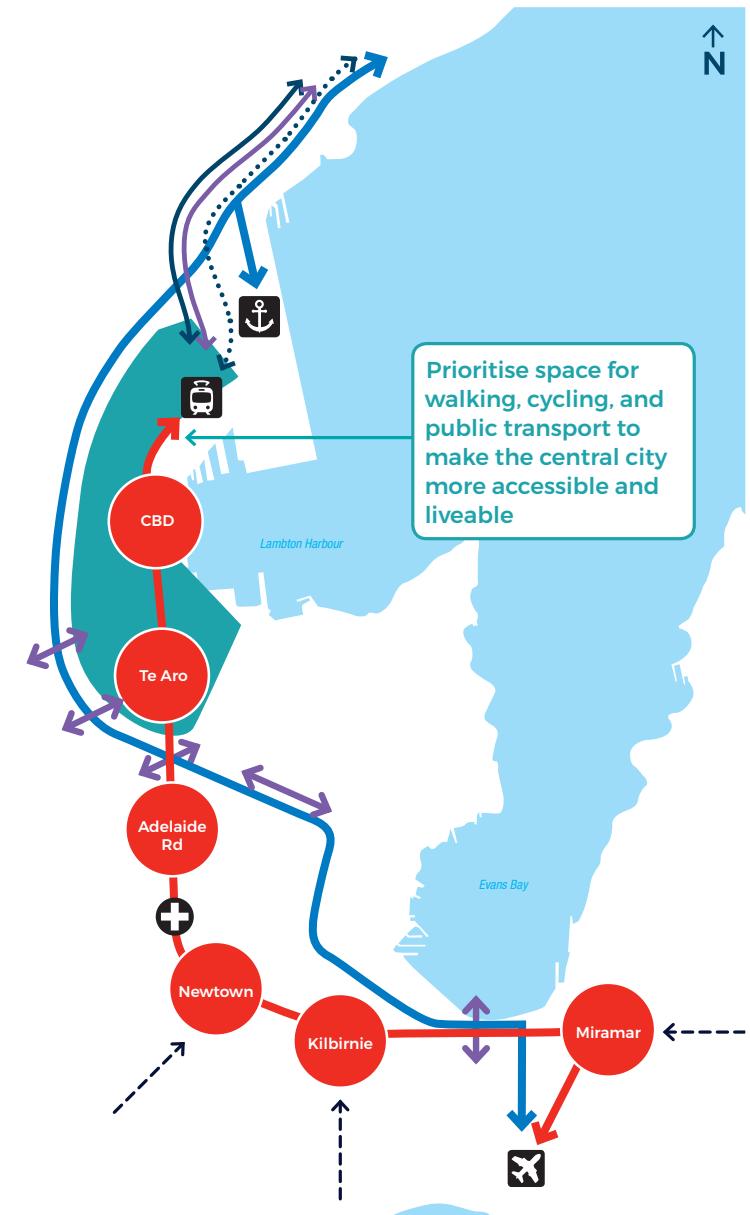
- Prioritise people walking, cycling, and using public transport on key corridors
- Improve accessibility and amenity of places and streets
- Ensure those who need to use private vehicles can (e.g. deliveries)

Separate walking, cycling, public transport, and vehicle movement across the state highway

### 4 Improve journeys through and around the central city

- Reduce conflicts between different transport users and traffic flows
- Increase the resilience and reliability of our transport corridors, especially to the hospital, port, and airport

Create a dedicated mass transit route to move more people and to support urban regeneration and intensification



# The recommended programme

## A WHOLE OF SYSTEM APPROACH – A RANGE OF IMPROVEMENTS THAT WORK TOGETHER

### HIGH QUALITY WALKING AND CYCLING

#### **So our streets are safer and better places for people**

- Safer speeds in and around the city
- Walking improvements though the central city including:
  - Footpath widening
  - Improved crossing facilities and reduced waiting times
  - Better shelters, signage, lighting
- New dedicated walking access through Mt Victoria
- Public space improvements, for example, Dixon, Mercer, through Te Aro, Basin Reserve
- A network of connected cycleways through the central city
- New dedicated cycleways connecting through Mt Victoria, along Adelaide Rd, and Vivian St
- New pedestrian crossings, including Cobham Drive



### BETTER PUBLIC TRANSPORT WITH HIGH-CAPACITY MASS TRANSIT

#### **So people have more travel choices, and buses and trains are more reliable and attractive**

- Mass transit from the railway station to the airport via a new waterfront spine, Taranaki Street, the hospital, Newtown, Kilbirnie, and Miramar (see page 9)
- Bus priority improvements:
  - Golden Mile spine, with general traffic removal on Willis and parts of Lambton and Courtenay
  - Core routes into the city such as Thorndon Quay and Hutt Road
- High quality, high frequency buses
- Increased rail network capacity\*
- Integrated ticketing\*

\*implemented outside of LGWM



# The recommended programme (continued)

## A WHOLE OF SYSTEM APPROACH – A RANGE OF IMPROVEMENTS THAT WORK TOGETHER

### URBAN DEVELOPMENT LAND USE CHANGES INTEGRATED WITH TRANSPORT

**So people have better travel choices near where they live and work**

- District plan changes
- Other tools to increase housing
- Building where the market can't deliver
- Capturing increases in land value to support infrastructure investment



### SMARTER TRANSPORT NETWORK WITH ROAD PRICING

**So people and goods make better use of our transport system with fewer cars**

- Smarter pricing (e.g. parking/cordon charges)
- Mobility as a Service for Wellington
- Network optimisation, safety and operations improvements
- Enhanced Travel Demand Management (TDM)
- Integrated network operating system
- Align parking policy and management with the programme



### MULTIMODAL STATE HIGHWAY IMPROVEMENTS

**To relocate cars out of the central city and enable better public transport, walking and cycling, and so people can get to key destinations, such as the hospital and airport, more reliably**

- Basin Reserve improvements (see page 11)
- Extra Mt Victoria Tunnel and widening Ruahine St/Wellington Rd
- Reconfiguring SH1 into a tunnel under a new city park in Te Aro
- Extra Terrace Tunnel
- SH1 Southbound widening between Ngauranga and Aotea Quay



# What could Wellington's future look like?



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# Mass transit

## CONNECTING THE CENTRAL CITY TO NEWTOWN, MIRAMAR AND THE AIRPORT, SUPPORTING URBAN REGENERATION



Mass transit will improve travel choice through the city with attractive public transport on a second spine along the waterfront quays. Mass transit will help shape a more compact and sustainable city and region.

Mass transit will be part of the wider public transport network, with:

- High frequency services (every 10 minutes or less)
- Modern, high capacity electric vehicles with superior ride quality
- Fast loading and unloading
- Dedicated lanes with signal priority
- High quality stations with level boarding

Phased development:

- Phase 1: Railway Station to Newtown
- Phase 2: Extension to Miramar and the airport

### KEY ISSUES

Further investigation is needed on:

- Technology (vehicle type)
- Route choice and extensions
- The potential for urban development
- Integration with the wider public transport network
- Funding options
- Supporting land use and policy changes to enable urban development and support the investment in mass transit

**FURTHER WORK IS  
NEEDED IN LGWM'S NEXT  
STAGE TO INVESTIGATE  
MASS TRANSIT, AND  
DETERMINE THE MOST  
APPROPRIATE MODE AND  
ROUTE, AND HOW BEST TO  
INTEGRATE IT WITH OTHER  
PROGRAMME ELEMENTS**



# A more walkable and attractive central city

## BETTER FACILITIES AND PRIORITY FOR PEOPLE WALKING



Walking and public space improvements in the central city will help create an environment that's safe and attractive for people to walk around, and that makes walking a more pleasant transport option for more people.

Walking improvements will include:

- Accessibility and amenity improvements – including wider footpaths, improved crossings and priority, shelter, signage, lighting – on main walking routes
- Setting safer speeds for vehicles in the central city and on State Highway 1 east of Mt Victoria
- Larger-scale walking improvements, to support high-quality public spaces
- Walking improvements included in major programme elements, for example high-quality walking access through Mt Victoria, and walking priority across the state highway in Te Aro
- A safe crossing for people walking and cycling on State Highway 1 Cobham Drive



# Unblocking the Basin

## IMPROVING ACCESS FOR ALL MODES WHILE ENHANCING THE BASIN'S VALUE FOR THE COMMUNITY



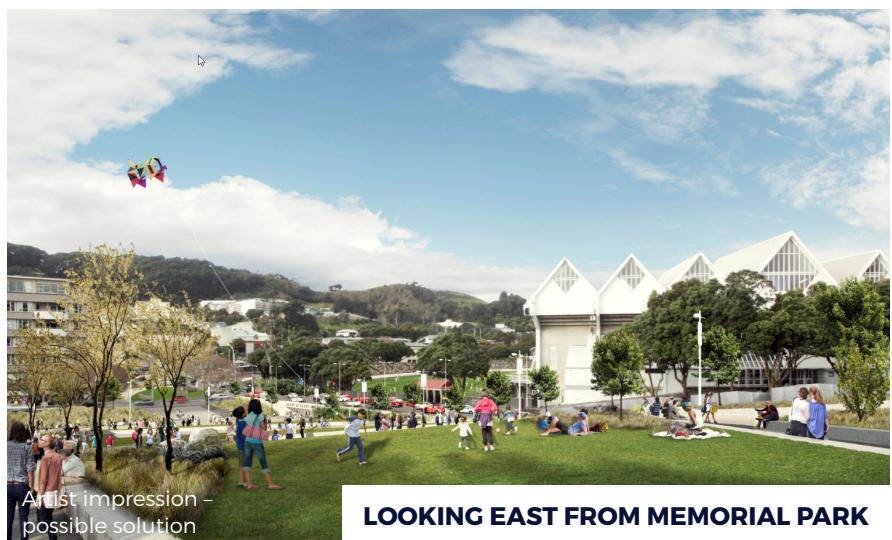
Improvements near the Basin Reserve will reduce conflicts between different travel movements and modes, creating more reliable access around the Basin regardless of how people travel, and better connections with the community.

Improvements will include:

- Minor at-grade changes in the short-term to improve reliable access for all modes
- Grade separation between north-south movements, east-west movements, and any mass transit corridors

### KEY ISSUES

- Further investigation is needed once the mass transit route is decided to determine which form of grade separation will provide the best outcomes for the transport network and the community
- Engagement with the community will be needed to explore and develop a design that achieves transport outcomes, is sympathetic to the local geography, enhances the use of the Basin, and improves amenity around the reserve.



**OPTIONS FOR GRADE  
SEPARATION WILL DEPEND  
ON KEY DECISIONS ABOUT  
THE MASS TRANSIT  
MODE AND ROUTE THAT  
REQUIRE MORE DETAILED  
INVESTIGATION**

# Te Aro improvements

## REDUCING THE IMPACT OF TRAFFIC THROUGH TE ARO BY REMOVING CONFLICTING MOVEMENTS



Putting the state highway into a new tunnel under Te Aro and creating a new urban greenspace above the tunnel will reduce severance in the Te Aro community and significantly improve the urban environment. It will enable regeneration and housing intensification close to jobs, education, and public transport. And it will give people walking, cycling, and on the bus, priority crossing over the state highway. It will also improve regional access to key destinations such as the hospital and airport.

Improvements will include:

- Undergrounding State Highway 1 in both directions on the inner-city bypass alignment
- Creating a transformational green space above (see illustrations)
- Removing state highway traffic from Vivian Street and Kent/Cambridge Terraces and making Vivian Street a two-way city street

### KEY ISSUES

Further investigation is needed to decide on:

- The form, feasibility, and cost of undergrounding
- The potential for urban regeneration and uplift
- Integration with other programme elements
- Engagement with the community will be needed to explore and develop a design that achieves the programme's outcomes and maximises the opportunities that the new park will bring





Artist impression - possible solution

# Programme sequence

## INDICATIVE TIMING

# by 2024

**Deliver early improvements including walking, cycling, and public transport that will help keep Wellington moving while starting investigation and design of larger programme elements**



**ESTIMATED TOTAL CAPITAL EXPENDITURE: \$0.6 BILLION\***

\*2018 dollars

- Central city walking
- Integrated ticketing\*
- Mobility as a service
- Network optimisation
- Enhanced TDM
- Integrated system operation

\* Progressed outside the LGWM programme

Increased rail capacity\*

Thorndon Quay/Hutt Road – prioritising buses and improving walking and cycling

Safer speeds in central city

Golden Mile – prioritising buses and improving walking and cycling.

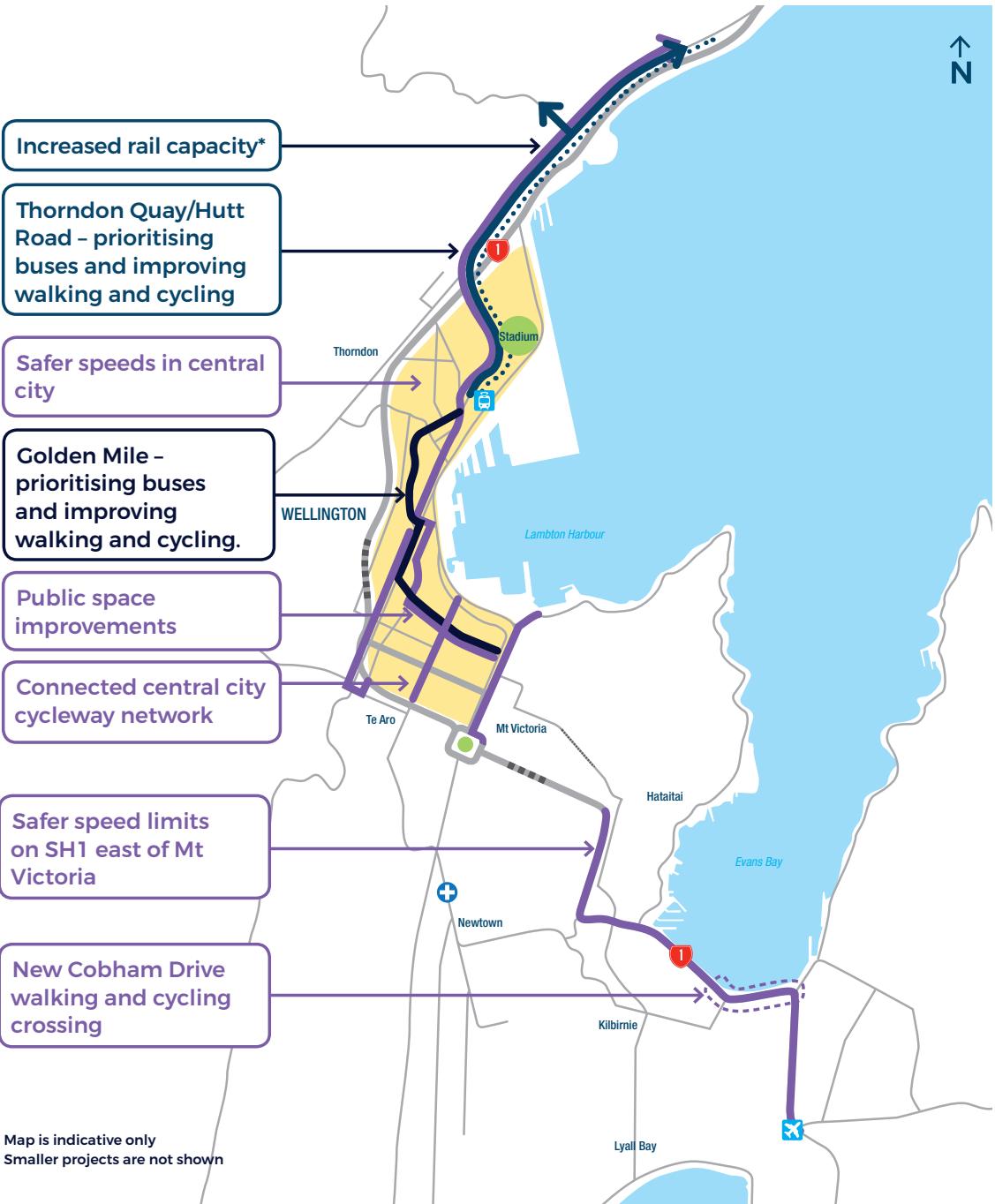
Public space improvements

Connected central city cycleway network

Safer speed limits on SH1 east of Mt Victoria

New Cobham Drive walking and cycling crossing

Map is indicative only  
Smaller projects are not shown



## INDICATIVE TIMING

# 2024 to 2029

Deliver a step-change in public transport with new mass transit, and reshape the transport system to provide more travel choice and transform Wellington

### UNDERWAY\*

Mass transit - Newtown to airport

Te Aro tunnel and city park

Extra Terrace Tunnel

Ngauranga to Aotea Quay

\* Includes detailed investigation, design, consultation, consenting, and/or early construction work

ESTIMATED TOTAL CAPITAL EXPENDITURE: **\$1.7 BILLION\***

\*2018 dollars

Smarter pricing

District plan changes

Technology review

Further rail enhancements

Mass transit city to Newtown

Basin improvements

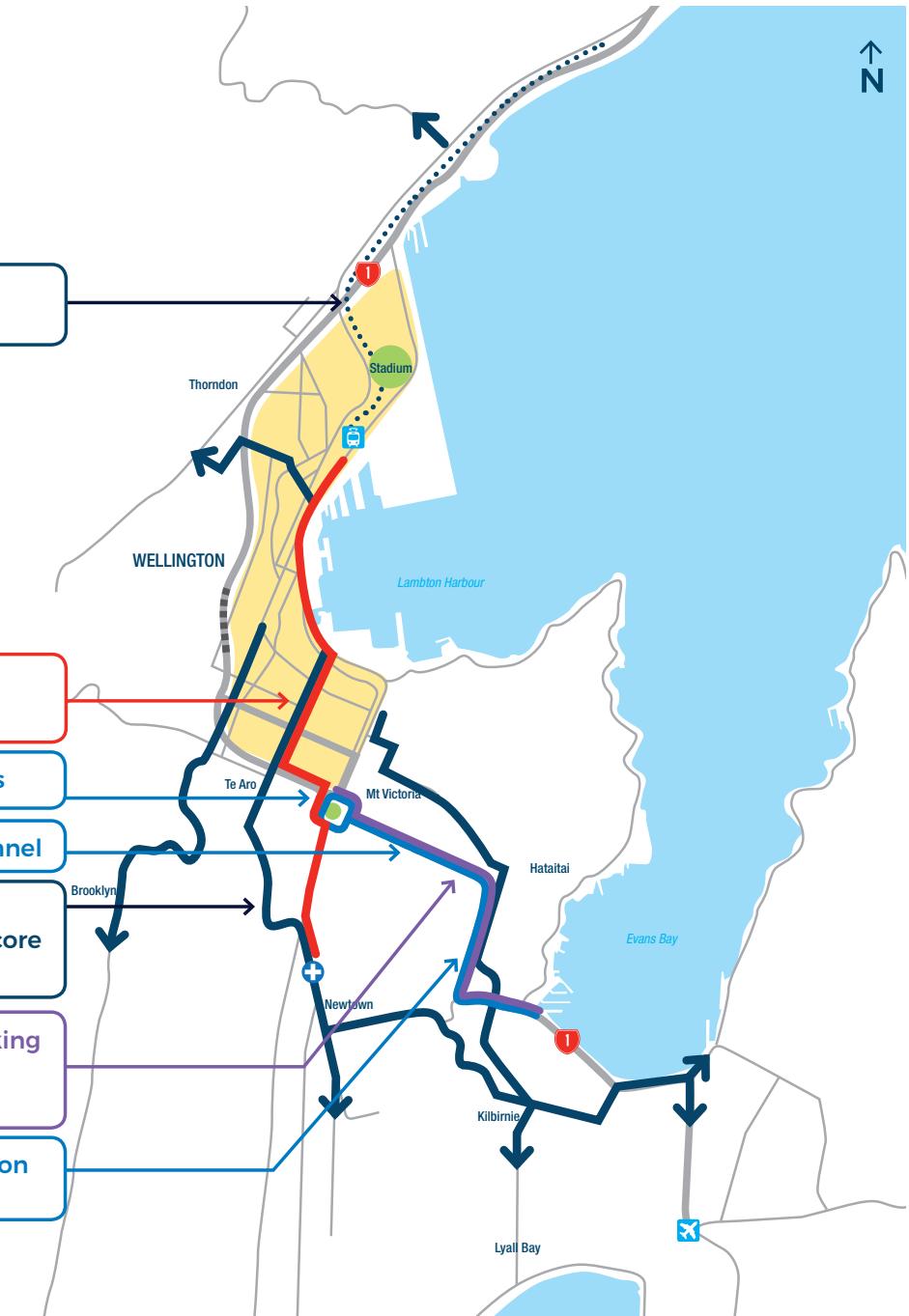
Extra Mt Victoria tunnel

Bus priority to and from the city along core routes

New dedicated walking and cycling access through Mt Victoria

Ruahine St/Wellington Rd widening

Map is indicative only  
Smaller projects are not shown



## INDICATIVE TIMING

# After 2029

Connect mass transit to the airport, adapt the programme to changing technology and to the city and region's growth

Technology review

Ngauranga to Aotea Quay

Extra Terrace Tunnel

Vivian St transformed into a two way city street with walking and cycling enhancements

Relocate SH1 southbound from Vivian St into a new tunnel under Te Aro

New city park over Te Aro tunnel

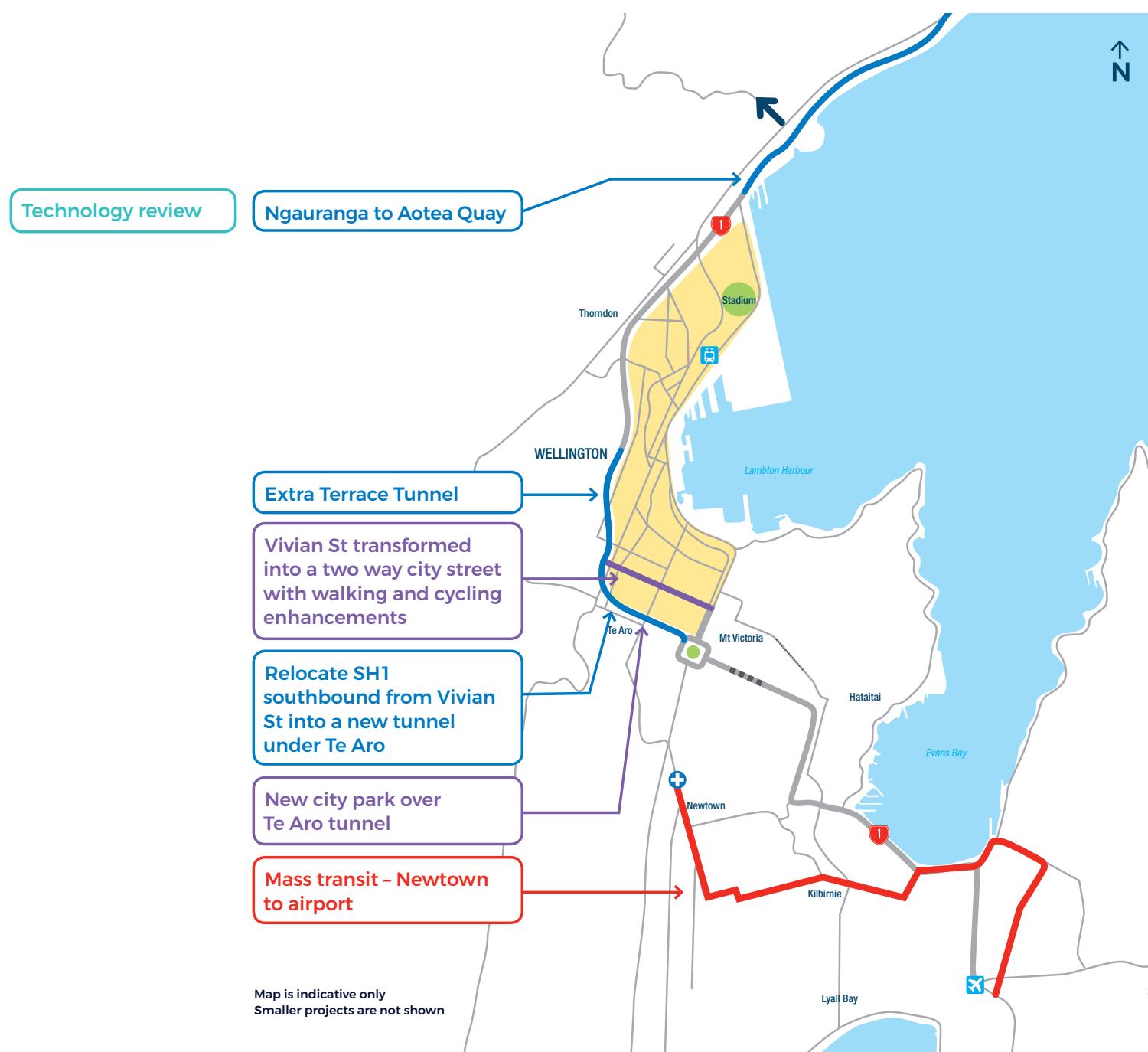
Mass transit - Newtown to airport

Map is indicative only  
Smaller projects are not shown

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ESTIMATED TOTAL CAPITAL EXPENDITURE: **\$1.7 BILLION\***

\*2018 dollars





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# Estimated programme performance

# Evaluating the recommended programme

## ASSESSING PERFORMANCE

LGWM used a range of assessment techniques, including transport modelling, to assess the programme's performance against Key Performance Indicators (KPIs). Other performance measures will be developed as the programme develops.

PROGRAMME OBJECTIVES	KEY PERFORMANCE INDICATORS	ASSESSMENT
 <b>LIVEABILITY</b>	 <b>Amenity</b>  <b>Carbon emissions</b>  <b>Urban development potential</b>	The quality of the urban environment, including greenspace, urban design, traffic volumes/speeds and pedestrian space Transport-related CO2 emissions in the central city Opportunities for urban development and value uplift
 <b>ACCESS</b>	 <b>Travel time reliability</b>	The reliability of travel time by different modes to key regional destinations
 <b>REDUCED CAR RELIANCE</b>	 <b>Network catchment</b>  <b>System occupancy</b>	The number of people living within 30 minutes of key destinations The ratio of people travelling to the central city (by all modes) against the number of private vehicles
 <b>SAFETY</b>	 <b>Level of service walking</b>  <b>Level of service cycling</b>  <b>Safety for walking and cycling</b>	Delays for people walking in the central city The quality of cycling facilities The safety benefits for people walking and cycling in and around the central city
 <b>RESILIENCE</b>	 <b>Network resilience</b>	Network resilience to disruption caused by large-scale natural hazards

## ESTIMATED PROGRAMME PERFORMANCE

# Liveability



## AMENITY

**Measure of the quality of the urban environment including greenspace, urban design, traffic volumes/speeds, and pedestrian space**

Amenity will improve due to more and better walking space, urban activation along side streets, street enhancements along the mass transit route, and lower traffic speeds and volumes.

### AMENITY IN SELECTED AREAS



## CARBON EMISSIONS

### Transport-related CO2 emissions

Emissions are projected to decline due to changes in the vehicle fleet (fuel efficiency and electric vehicles). The programme contributes a further 18% reduction in emissions within the CBD. Road pricing will have the biggest impact on emissions and the programme includes good public transport, walking and cycling options to enable pricing. Mass transit supports more intensive development so more people use public transport and more destinations are walkable and cycleable..

### EMISSIONS PER PERSON (2013 = 100)



## URBAN DEVELOPMENT POTENTIAL

**Assessment of the opportunities for urban development and value uplift**

Mass transit will facilitate regeneration and more intensive development around stops. This will contribute to land value increase from additional development and jobs facilitated by intensification.

### POTENTIAL FOR URBAN DEVELOPMENT



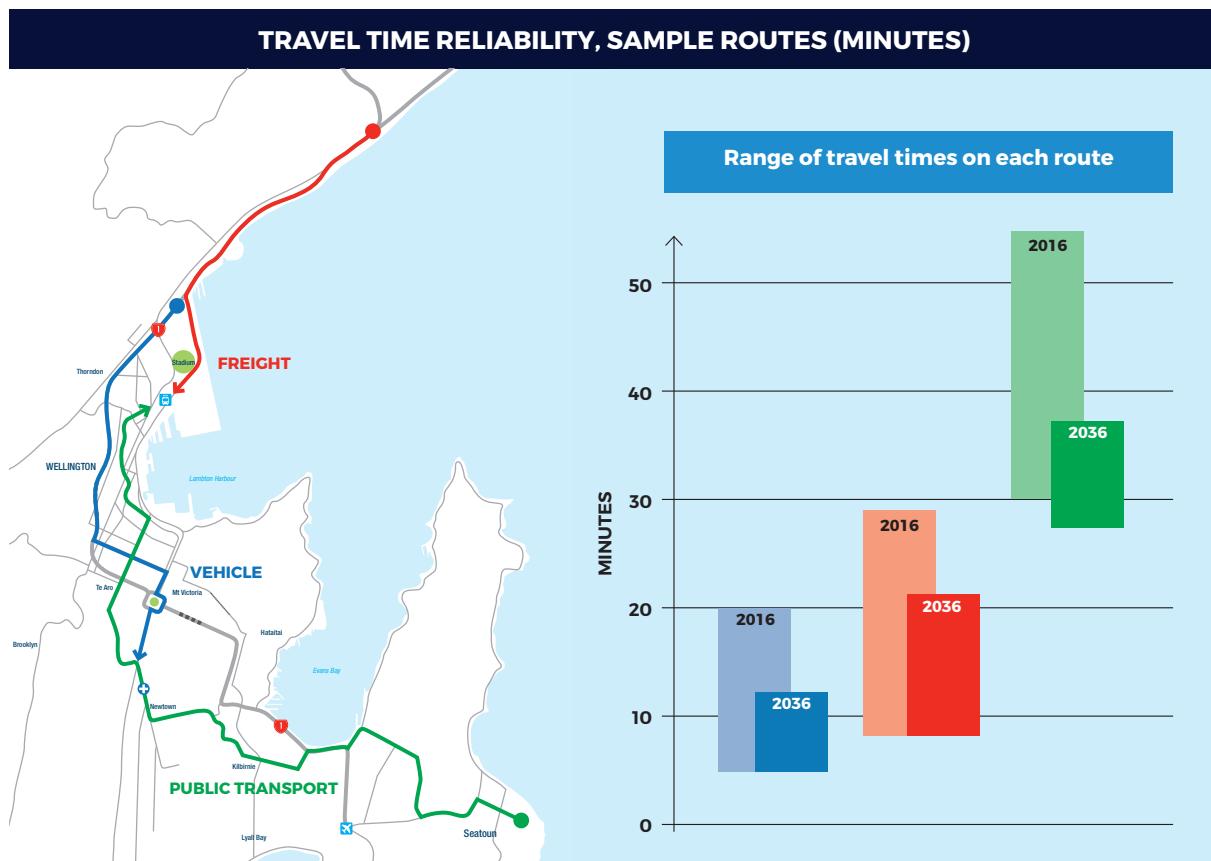
# Efficient and reliable access



## TRAVEL TIME RELIABILITY

The reliability of travel time for journeys by different modes to key regional locations

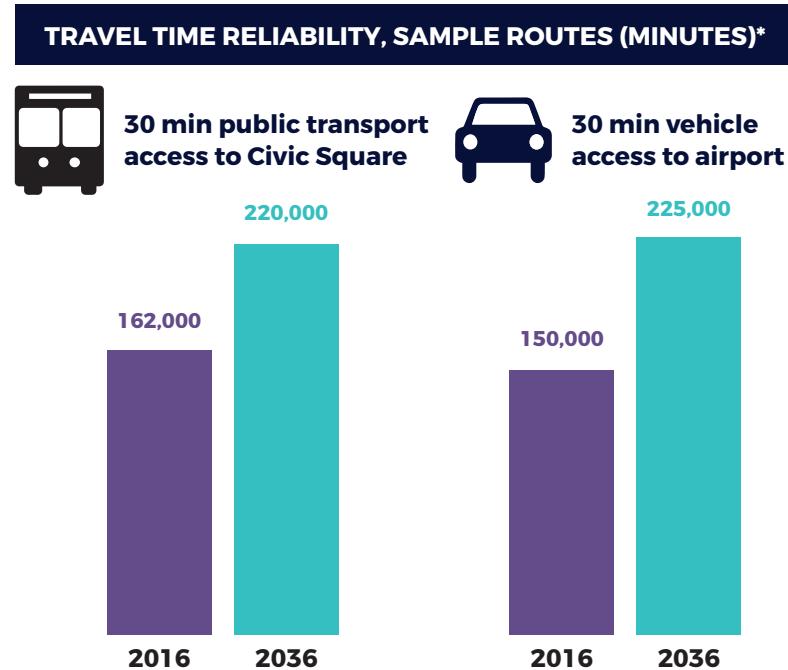
Travel time reliability to and through the central city and to key regional destinations will improve.



## NETWORK CATCHMENT

The number of people living and working within 30 minutes of key locations

Accessibility to the central city and key regional destinations will improve by all modes. In 2036, the programme will increase the number of people within 30 min of Wellington CBD by public transport by 58,000 (36%) and the number of people within 30 min drive of the airport by 75,000 (50%).



\* In the morning peak 7-9am weekdays

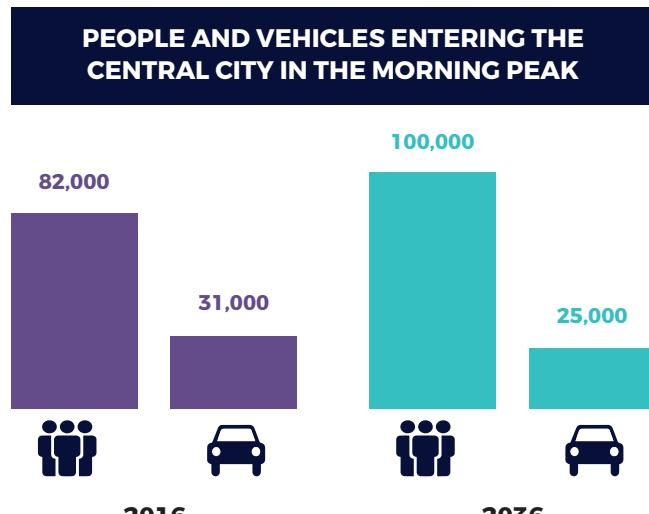
# Reduced reliance on private vehicles



## SYSTEM OCCUPANCY

**The ratio of people entering the central city (by all modes) against the number of vehicles entering the central city**

System occupancy will increase due to more use of public transport, walking and cycling, fewer vehicles entering the central city, and increased car occupancy due to pricing.



## LEVEL OF SERVICE WALKING

### Delays for people walking in the city

Key outcomes for people walking:

- ✓ Less traffic across the central city
- ✓ Less waiting time at crossings in the central city
- ✓ Pedestrian crossing priority will be enhanced along key pedestrian routes
- ✓ Community severance will be reduced due to walking priority across the state highway in Te Aro
- ✓ Improvements for people crossing the road at stations along the mass transit corridor will provide a benefit to mass transit users and others



## LEVEL OF SERVICE CYCLING

### An assessment of the quality of cycling facilities

The level of service for cycling will improve from poor to good or very good in the central city and when connecting to the east. Some improvement to the north and south.

**CYCLE, LEVEL OF SERVICE MEASURE,  
DANISH ROAD DIRECTORATE**



Cycle, level of service measure,  
Danish Road Directorate



# Safety and resilience

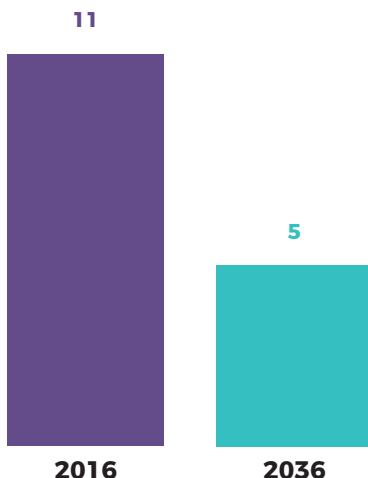


## SAFETY FOR WALKING AND CYCLING

**An estimate of the safety benefits for people walking and cycling in and around the central city**

There will be fewer fatal and serious injury crashes for people walking and cycling due to reduced traffic volumes in the central city, reduced conflicts along the state highway, and lower traffic speeds.

### ANNUAL DEATHS AND SERIOUS INJURIES, WALKING AND CYCLING



## NETWORK RESILIENCE

**An assessment of the network's resilience to disruption caused by large-scale natural hazards**

Access between communities and key regional facilities (hospital, airport, port) will be more secure following a large-scale natural hazard event.

The transport network will be more resilient to small scale disruption due to additional capacity on both traffic and public transport networks.

# Other significant impacts



## PARKING

### **On-street car parks will need to be removed**

**Where:** Through the central city and along main corridors to south, east, north

**Why:** To reallocate space to moving people

**The number of parks affected and location will be determined as detailed design progresses. An initial estimate is that up to 1,500 on-street car parks may be affected.**

## MITIGATION:

Parking mitigation strategy will be a key element of the programme

Improvements to public transport and walking and cycling links, coupled with pricing, will reduce the demand for parking



## BUILT ENVIRONMENT AND HERITAGE

### **Private property and heritage items will be affected**

**Where:** Along the mass transit route and the state highway

**Why:** To provide space for mass transit and other key infrastructure works

**The impacts may include land take, impact on property frontage or setting, or require a building to be adapted or moved.**

## MITIGATION:

Detailed design will acknowledge the requirement to preserve heritage features and enhance the overall built environment

Property impacts will be avoided or minimised where possible through detailed design



## CONSTRUCTION DISRUPTION

**Road or lane closures, reduced speeds, stop/start conditions, and some restrictions on property access will be required**

**Where:** Through the central city and along main corridors to south & east – mass transit and the state highway

**Why:** To accommodate construction of new and improved infrastructure

**Disruption during construction will be significant and city-wide.**

## MITIGATION:

Sequencing and control will be important to manage demand and available capacity

Travel demand management techniques will be employed

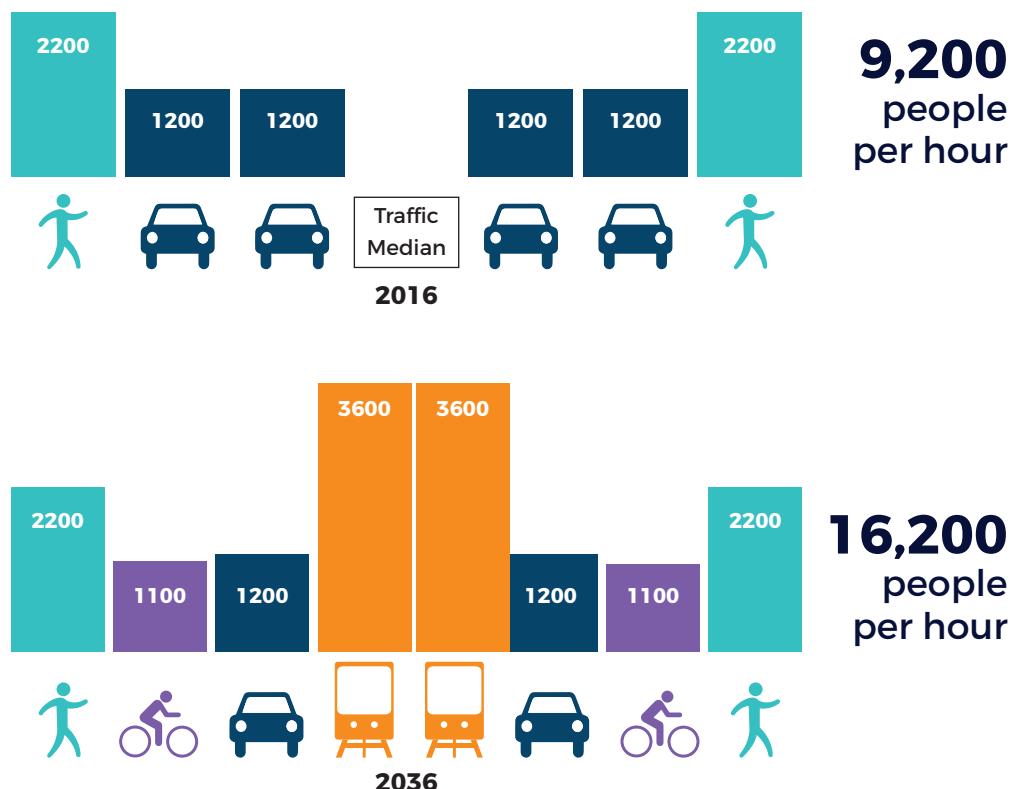
## ESTIMATED PROGRAMME PERFORMANCE

# Moving more people with fewer vehicles

### IMPROVING CAPACITY ON KEY ROUTES

By improving facilities for walking, cycling, and public transport, and creating dedicated/priority routes, key roads can carry many more people at peak times.

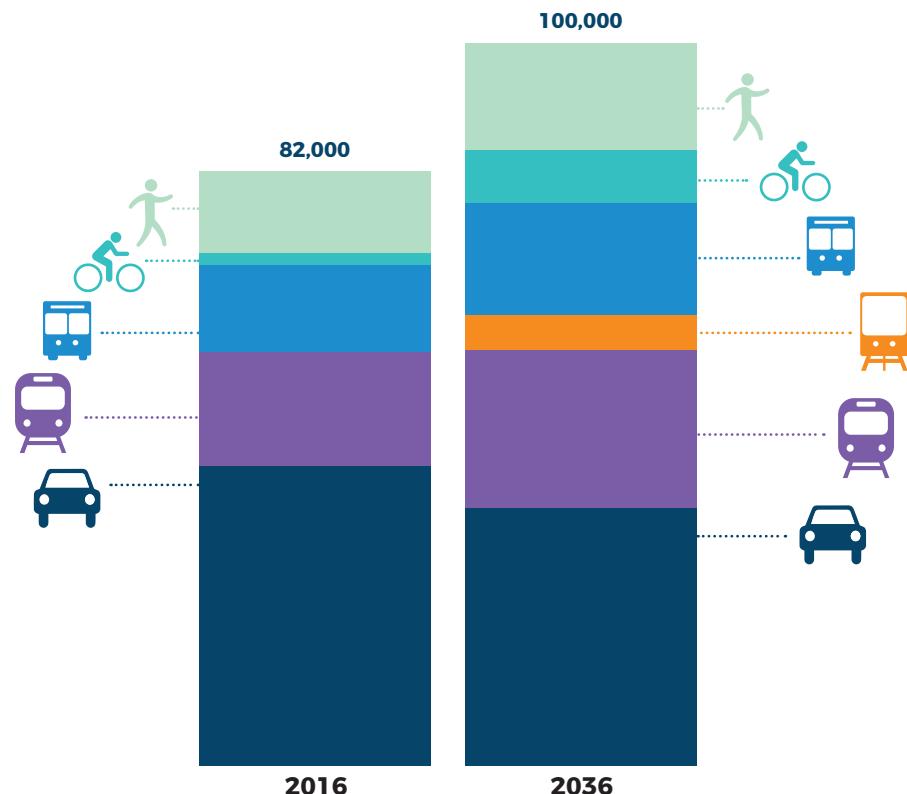
#### EXAMPLE CAPACITY - TARANAKI ST CROSS-SECTION



### REDUCING RELIANCE ON PRIVATE VEHICLES

18,000 more people are forecast to travel into the central city with 6,000 fewer cars.

#### PEOPLE ENTERING THE CENTRAL CITY IN THE MORNING PEAK\*



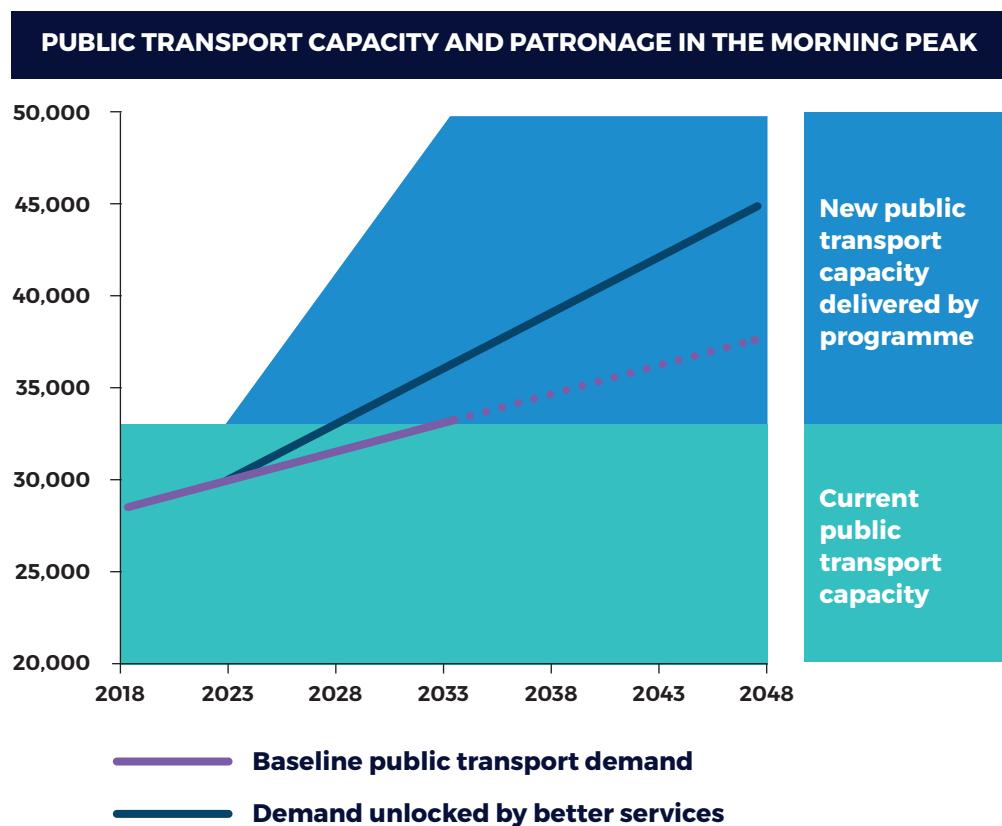
\* 7-9am weekdays

## ESTIMATED PROGRAMME PERFORMANCE

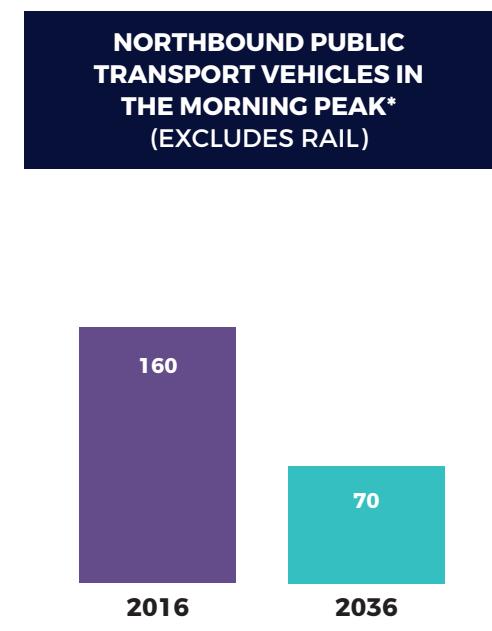
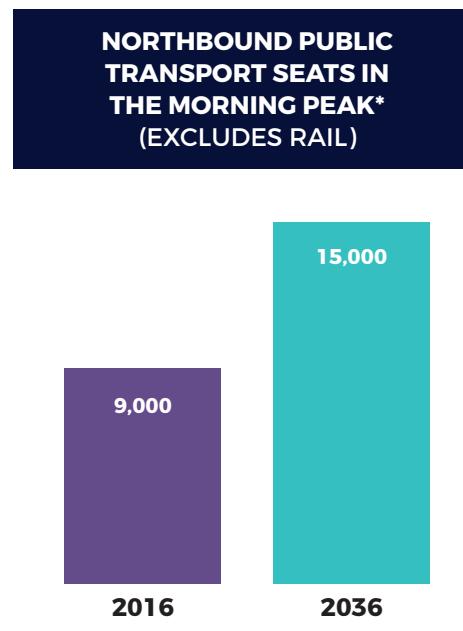
# A step-change in public transport

### MORE CAPACITY WILL UNLOCK DEMAND

The programme will deliver a step-change in public transport. An increase in capacity and higher-quality services are forecast to unlock demand.



### MORE PUBLIC TRANSPORT CAPACITY, FEWER PUBLIC TRANSPORT VEHICLES IN THE CENTRAL CITY



\* 7-9am weekdays

# Economics



Artist impression – possible solution

# Economics

## COSTS

Estimated capital costs of the key elements of the recommended programme are shown below.

### Mid-range capital cost estimate

Element	\$m*
Walkable city	70
Connected cycleways	30
Public transport	300
Mass transit - city to Newtown	990
Mass transit - Newtown to airport	450
Smarter transport network	30
Smarter pricing	30
Extra Mt Victoria tunnel and Ruahine/Wellington Rd	480
Basin Reserve improvements	130
Extra Terrace Tunnel and 4th lane southbound	400
Te Aro Tunnel and park	1,100
<b>TOTAL</b>	<b>4,010</b>

\* 2018 dollars

## BENEFITS

The programme is estimated to contribute significant benefits to the city and region including:

- Health benefits from more walking, cycling, and walking to public transport
- Liveability benefits from higher amenity and more green space
- Safety benefits for people walking, on bikes, and in cars due to fewer and less serious crashes
- Environmental benefits such as lower carbon emissions and less noise
- Travel time benefits
- Wider economic benefits from higher productivity and land value uplift
- More reliable, more pleasant and less crowded travel offered by mass transit
- Changes in future distribution of housing in the city and region

## BENEFIT COST RATIO

Economic assessment estimates that the programme Benefit Cost Ratio (BCR) will be in a range from 0.6 to 1.4 (see summary below).

Taking account of costs to government, excluding possible third party revenues, the alternative BCR Government (BCR-G) is between 0.7 to 1.7.

Applying a lower discount rate (4% instead of 6%) would increase the full BCR range to 0.7 to 1.7, and the BCR-G to 0.8 to 2.0.

Applying both a 4% discount rate and a longer evaluation period (60 years instead of 40 years) would increase the full BCR to 0.9 to 2.1, and the BCR-G to 1.0 to 2.4.

## INDICATIVE BCR SUMMARY - RECOMMENDED PROGRAMME OF INVESTMENT

Full cost BCR				Cost to Government BCR-G		
	Lower benefits	Central	Higher benefits	Lower benefits	Central	Higher benefits
BCR	0.6	1.0	1.4	0.7	1.2	1.7

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Absolutely Positively  
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